Different Conceptions of Precaution

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Precaution Is All Around Us

We speak of exercising precaution toward

- Our children to protect them in numerous ways.
- Preventing athletic injuries.
- Possible injuries that have occurred.
- Food for religious reasons, e.g., kosher foods are labeled.
- Precious artworks.
- Highly valued natural phenomena.

Before-the-Fact of Harm Precaution

Athletic analogies: Knees and ankles are anatomically vulnerable areas in certain sports.

- Have athletes strengthen these vulnerable areas--to try to prevent injuries (anticipatory planning and action based on knowledge of susceptibilities).
- Do precautionary taping of ankles to prevent sprains or minimize damage done if sprains occur (anticipatory action).
- Conduct on-going monitoring of team's ankles/knees, ice even small injuries, be alert to damage or precursors of damage.

After-the-Fact of Harm Precaution

Athletic analogies: knees and ankles

- If ankles or knees are injured, take after-the-fact precautions:
  - Do precautionary icing.
  - Perform precautionary MRI's to determine extent of damage.
  - Prescribe protective boots, if serious.
  - Put on casts if necessary, and so on.

Some Conceptual Points

An analytic precautionary approach can have several features:

- Some valued state of affairs considered worth protecting.
- Various *anticipatory* information-gathering strategies toward it.
- Consider alternative actions to prevent harm or reduce threats to it.
- Some evidentiary trigger(s) for taking actions to protect it.
- Some conditions on the protective actions.

Some More Examples

- Valued natural resources, e.g., the Grand Canyon, Yosemite Valley.
- Valued art works, e.g., Michelangelo's art in the Sistine Chapel.
- Your favorite antique car.
- The planet Earth without global warming.

Some Conceptual Points

Because we care about a valued thing or state of affairs, we gather information about its condition and potential threats to it:

We scope out, conduct an inventory or a survey of its condition, or monitor it to try to detect any threats to it or damage from which it suffers--monitor the condition of the Sistine Chapel.

We use foresight to try to anticipate or "scout out" threats or other harmful things that could occur to the object, or perhaps post sentinels to look or anticipate threats--What is the condition of the Chapel? Are the frescoes holding up? What kinds of things might threaten the art?

We engage in planning to prevent threats from materializing.

Some Conceptual Points

If the valued thing is threatened, what alternative courses of action might we take to avoid the threat, prevent it from materializing, reduce the damage that might be caused, or, if all that fails, to restore damaged thing to a better condition.

- What planning and precautionary steps could be taken toward the the Sistine Chapel to preserve and protect it for generations?
- What alternatives would prevent or slow deterioration of the Sistine Chapel consistent with preserving public accessibility?
- To what extent can public accessibility be preserved?

Some Conceptual Points

Since often protective or precautionary actions will affect other aspects of our lives or the world in which we live, under what conditions should precautionary actions be taken, e.g., U.N. Principle: actions must be “cost-effective.”

Some Conceptual Points

When exercising precaution what degree of certainty do we need to pursue various alternative actions?

- To protect our children from threats?
- To protect Yosemite Valley?
- To reduce global warming?
- To protect the Sistine Chapel?

Rio Declaration on Environment and Development 1992

"Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation." (*Late Lessons from Early Warnings*, EU 2001)

Rio Declaration on Environment and Development 1992: After-the-Fact Precaution

Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason . . . .

A threat is “An indication of impending danger or harm.” American Heritage Dictionary

Decision maker has some evidence of impending harm and should not refrain from acting simply because she does not have full scientific certainty about the harm or danger.

Rio Declaration on Environment and Development 1992: After-the-Fact Precaution

Some danger, harm or serious risk is already known to be present.

It discourages demanding high degrees of certainty before taking cost-effective actions to reduce or ward off further harm to a highly valued thing.

Think of this as “downstream” precaution; decision maker has evidence of actual or impending harm. What precautionary steps should be taken?

Rio Declaration on Environment and Development 1992: After-the-Fact Precaution

Examples:

- There were “credible warnings [evidence]” about adverse effects occurring from asbestos, PCBs, benzene, and harmful contamination in the Great Lakes.
- Decision makers did not act on the evidence they had about harm occurring, but temporized for many years before addressing these problems. (*Late Lessons from Early Warnings*, EU 2001)

Framework Convention on Climate Change: Before-the-Fact of Harm Precaution

"The Parties should take precautionary measures to anticipate, prevent or minimise the causes of climate change and mitigate its adverse effects." (*Late Lessons from Early Warnings*, 2001)

Collectively we need to engage in "upstream" prudent planning, considering alternatives to address global warming.

We do not wait for actual harm to appear; scientists know enough based on background knowledge to begin to take precautionary actions.

Before-the-Fact of Harm Precaution

Examples:

- Knowledge that widespread use of antibiotics could contribute to antibiotic resistance. (*Late Lessons*)
- However, there was no monitoring, no follow-up research to see whether this was actually occurring.
- No discouragement of the activity, no watchful observations about occurrence of resistance, no scouting and no or few actions as a result of existing knowledge.

Before-the-Fact of Harm Precaution

Given what a decision maker knows about a potential problem, what foresight, information gathering, anticipatory and prudent planning should she engage in and what alternative courses of action should be considered to

- Prevent it altogether or reduce the odds that it will occur.
- Prevent the potential problem from worsening (if it already exists).
- Or minimize its adverse effects if it will inevitably materialize?

Before-the-Fact of Harm Precaution:
Potential Adverse Effects on Children

Developing children are more vulnerable to adverse effects than adults and they are already contaminated.

Children constitute a more susceptible group now than might have been previously thought.

Before-the-Fact of Harm Precaution:
Potential Adverse Effects on Children

It is biologically plausible (and very highly probable) that industrial chemicals enter our bodies and penetrate the tissues and fluids, i.e., contaminate us. (CDC Biomonitoring Program)

It is biologically plausible (and very likely) that industrial chemicals can cross the placenta to expose developing fetuses, and can enter breast milk (perhaps a slightly lower probability) and expose nursing newborns.

Before-the-Fact of Harm Precaution:
Potential Adverse Effects on Children

It is a live biological possibility (a less understood probability) that developing fetuses and newborns can be at risk from contaminants.

Injuries in fact have resulted from exposures to drugs, industrial chemicals or pollutants, e.g., thalidomide, mercury, DES, PCBs, lead, anti-convulsants, arsenic, alcohol, tobacco smoke, DDT, ionizing radiation.

Before-the-Fact of Harm Precaution: Potential Adverse Effects on Children

A much wider range of substances are likely to harm children or at a minimum to increase risks to them as a result of current scientific evidence.

E.G., organophosphate pesticides, synthetic estrogens (e.g., bisphenol A and phthalates), other dioxin-like substances, air- and water-borne mercury, other lead exposures, classes of substances that cause harm through certain cellular receptors,

Before-the-Fact of Harm Precaution: Potential Adverse Effects on Children

New problem of children's exposures to and bodily contamination by PBDE flame retardants because of known chemical and biological analogies to PCBs.

On top of any other POPs (persistent organic pollutants) and other neurotoxicants in their bodies or to which they are exposed.

Before-the-Fact of Harm Precaution: Potential Adverse Effects on Children

What foresight, information gathering, anticipatory and prudent planning should we engage in and what courses of action should be considered to

- Prevent these risks from arising?
- Prevent the potential o(r existing) problems to children from worsening?

Thank you